



What does it mean to be a cancer gene carrier? Problems in establishing causality from the molecular genetics of cancer

Author: Schatzkin A, Goldstein A, Freedman LS

Journal: J Natl Cancer Inst 1995; 87(15):1126-30

Abstract: This article addresses the following question: What does it mean to be a cancer gene carrier? The existence of families prone to cancer has prompted an intense search for predisposing heritable gene mutations. Genes that impart susceptibility to colorectal, breast, and ovarian cancers have been recently identified. It is doubtful, however, that the action of a single mutant gene totally accounts for the development of malignant disease. The mutant gene likely causes cancer in these family members only in conjunction with other genes, environmental factors, or both. Furthermore, although an individual carrier of a mutant gene within a cancer-prone family has an increased risk of malignancy, nutritional, pharmacologic, or other interventions may still confer protection. Extrapolations from cancer-prone families to the general population are even more problematic. The excess risk of malignancy among carriers of mutant genes who are not members of cancer-prone families is unknown. Large-scale epidemiologic studies are needed to determine the magnitude (or even the existence) of such excess risk.